



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,784	06/26/2003	Eran Steinberg	FN-102F-US	8102
72104	7590	09/01/2010	EXAMINER	
Tessera/FotoNation Patent Legal Dept. 3025 Orchard Parkway San Jose, CA 95134			YUAN, KATHLEEN S	
			ART UNIT	PAPER NUMBER
			2624	
			MAIL DATE	DELIVERY MODE
			09/01/2010	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/608,784

**Applicant(s)**

STEINBERG ET AL.

**Examiner**

KATHLEEN S. YUAN

**Art Unit**

2624

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 August 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15, 22-33, 41-55, 63-73 and 81-112 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15, 22-33, 41-55, 63-73 and 81-112 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 8/2/2010
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

The response received on 8/2/2010 has been placed in the file and was considered by the examiner. An action on the merit follows.

#### ***Response to Amendment***

1. The amendments filed on 2010 August 2 have been fully considered. Response to these amendments is provided below.

#### *Summary of Amendment/ Arguments and Examiner's Response:*

2. *The applicant has amended the claims to include new limitations. The applicant argues that prior art does not teach the limitations.*

3. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

4. *The applicant further argues that Cosatto et al is non-analogous prior art and cannot be combined with Takei to reject any of the applicant's claims, Since Cosatto is in the field of image synthesis and does not start with an image acquired from a lens and a sensor.*

5. The examiner disagrees. No matter how the image is obtained, if the image processing of the image is disclosed, it is obvious to one of ordinary skill of the art to process an image in the same manner no matter how it is obtained. The art is analogous because both references are from the same field of endeavor, i.e. image processing. Therefore, even if the images from Cosatto were animated instead of recorded from a video camera, the process would be obvious. Even so, Cosatto does

record images from a video camera, and uses those images to create animation by using a facial location image processing step. (col. 8, lines 8-10, 18-20, col. 6, lines 50-53). So, in actuality, the facial location teaching is obtained by using a digital image acquisition device that includes a lens and an image sensor, a camera (col. 4, line 25).

### ***Information Disclosure Statement***

6. The information disclosure statement filed 8/2/2010 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered. Those references that have been line through have not been considered.

### ***Claim Rejections - 35 USC § 101***

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

Claims that recite nothing but the physical characteristics of a form of energy, such as frequency, voltage, or strength of a magnetic field, define energy or magnetism, per se, and as such are nonstatutory natural phenomena. O'Reilly, 56 I.S. (15 How.) at 112-14. Moreover, it does not appear that a claim reciting a signal encoded with functional descriptive material falls within any of the categories of patentable subject matter set forth in Sec. 101.

...a signal does not fall within one of the four statutory classes of Sec 101.

...signal claims are ineligible for patent protection because they do not fall within any of the four statutory classes of Sec. 101.

8. Claims 63 and 84 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 63 is drawn to functional descriptive material recorded on one or more computer readable media. A computer readable medium can be defined as encompassing statutory medium, but it also encompasses non-statutory subject matter such as a signal or carrier wave.

A "signal" embodying functional descriptive material is neither a process nor a product (i.e., a tangible "thing") and therefore does not fall within one of the four statutory classes of §101. Rather, "signal" is a form of energy, in the absence of any physical structure of tangible material.

Because the full scope of the claim encompasses non-statutory subject matter, the claim as a whole is non-statutory. The examiner suggests amending the claim to "a *non-transitory* computer readable medium encoded with a computer program." Any amendment to the claim should be commensurate with its corresponding disclosure.

### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1 and 85 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5353058 (Takei) in view of U.S. Patent No. 6504546 (Cosatto et al) and U.S. Patent No. 6885760 (Yamada et al).

11. Regarding claim 1, Takei discloses a method of generating on a processor-based digital image acquisition device one or more new digital still images using an original digitally-acquired still image including a face, comprising: using a processor (fig. 4) of the device in performing the following: acquiring the original digitally-acquired still image on the processor-based digital image acquisition device, the digital image obtained by item 14 of fig. 4, that includes a lens (fig. 4, item 10) and image sensor (fig. 4, item 14) for capturing digital images (a) identifying one or more groups of pixels that correspond to a face within a foreground region of the original digitally-acquired still image by identifying which groups of pixels/ areas have flesh colored regions that correspond to a face within a foreground region (fig. 11A, col. 9, lines 29-32) which has a certain resolution, since the image will have the resolution that the camera takes, wherein the identifying comprises sub-sampling of the image, by dividing/ subsampling the image into 12 areas (col. 9, lines 29-31) and not including the area around the areas (fig. 6a-b) and wherein the identifying further comprises detecting the face in real time since the exposure control is done in the camera automatically and maintained throughout all times (col. 1, lines 11-15); (b) calculating a degree to which exposure of the face in the foreground within said image differs from a desired exposure of said face by finding the

correction signal that corrects the values to obtain the appropriate exposure (col. 9, lines 30-35) within said image, including determining that said face lacks the desired exposure as being shadowed or shot with back light or otherwise insufficiently illuminated during acquisition (col. 9, lines 30-31), (c) based on the identifying of the one or more groups of pixels that correspond to said face and on the degree as a result of the calculating, selecting a portion of the original still image for processing to include the one or more groups of pixels, the pixels of flesh color (col. 9, lines 40-60); and (d) automatically generating values of pixels of one new still image based on the selected portion in a manner which always includes the face within the one or more new still images which differ from the original digitally-acquired still image by including at least one group of pixels modified at least in luminance of the face, the pixels of the face, including applying a digital fill flash to add light and to boost the luminance of the face in the foreground, as compared with the one or more groups of pixels identified in the foreground of the original digitally-acquired still image, since the exposure of the face is compensated/ corrected when there is backlight, thus lightening the areas of the foreground/ face (col. 9, lines 40-60).

Takai does not disclose expressly that the sub-sampling used to identify groups of pixels that correspond to the face is sub-sampling of the resolution of the image, including reducing a resolution of at least one or more portions of the image on which computations are performed, and that the identifying pixels that belong to the faces is based on analyzing of a luminance map of the digitally-acquired still image, including comparing the luminance map with patterns of luminance data that match face images.

Cosatto et al discloses when identifying areas/ pixels that correspond to the face/ head, it is known to sub-sample the resolution of the image by reducing the resolution of the image/ creating strongly reduced resolution image on which computations/ the computations made to find the face are performed (col. 8, lines 10-15).

Takai and Cosatto et al are combinable because they are from the same field of endeavor, i.e. locating faces.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to reduce the resolution of the image to find the face.

The suggestion/motivation for doing so would have been to speed up the method by having less data that needs to be processed and eliminating data that does not need to be processed in detail.

Takei (as modified by Cosatto et al) does not disclose expressly that the identifying pixels that belong to the faces is based on analyzing of a luminance map of the digitally-acquired still image, including comparing the luminance map with patterns of luminance data that match face images.

Yamada et al discloses the identifying pixels that belong to the face is based on analyzing of a luminance map of the digitally-acquired still image by analyzing the luminance values of the image (col. 2, lines 24-28), including comparing the luminance map with patterns of luminance data that match face images since the luminance map is compared to the pattern of how face images are expected to be arranged as a pattern of shape and arrangement, with the eyes and mouth (col. 2, lines 28-34)



Takei (as modified by Cosatto et al) and Yamada et al are combinable because they are from the same field of endeavor, i.e. locating facial images.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a luminance map and pattern to find faces.

The suggestion/ motivation for doing so would have been to provide a more robust system for finding faces by relying on the pattern of the face instead of simply the color.

Therefore, it would have been obvious to combine the method of Takai with the subsampling of Cosatto et al and the luminance pattern matching of Yamada to obtain the invention as specified in claim 1.

12. Claim 85 is rejected for the same reasons as claim 1. Thus, the arguments analogous to that presented above for claim 1 are equally applicable to claim 85. Claim 85 distinguishes from claim 1 only in that claim 85 adds the limitation that the process is carried out on the portable digital camera. Takei teaches this feature, i.e. the apparatus is on a video camera (col. 1, lines 11-14).

13. Claims 23 and 92 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takei in view of Cosatto et al and Yamada et al, as applied to claims 1 and 85 above, and further in view of U.S. Patent Application Publication No. 20040095359 (Simon et al).

Claims 23 and 92 are rejected for the same reasons as claims 1 and 85, respectively. Thus, the arguments analogous to that presented above for claims 1 and

85 are equally applicable to claims 23 and 92. Claims 23 and 92 distinguishes from claims 1 and 85 only in that they automatically provide an option for generating new values. Simon et al teaches further this feature, i.e. providing options to the user for generating new values (fig. 1, step 102 and 104)

Takei (as modified by Cosatto et al and Yamada et al) and Simon et al are combinable because they are from the same field of endeavor, i.e. processing facial images.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to automatically provide an option.

The suggestion/motivation for doing so would have been to provide a more user-friendly system by allowing them to access their preferences.

Therefore, it would have been obvious to combine Takei (as modified by Cosatto et al and Yamada et al) with the option of Simon et al to obtain the invention as specified in claims 23 and 92.

14. Claims 41 and 99 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takei in view of Cosatto et al and Yamada et al, as applied to claims 1 and 85 above, and further in view of U.S. Patent Application Publication No. 20010005222 (Yamaguchi).

15. Claims 41 and 99 are rejected for the same reasons as claims 1 and 85. Thus, the arguments analogous to that presented above for claims 1 and 85 are equally applicable to claims 41 and 99. Claims 41 and 99 distinguishes from claims 1 and 85

only in that they are non-transitory CRM claims instead of method claims. Yamaguchi teaches further this feature, i.e. that a method can be embodied on a non-transitory CRM (col. 4, line 62- col. 5, line 10); particularly a method that involves the adjustment of face data.

Takei (as modified by Cosatto et al and Yamada et al) and Yamaguchi are combinable because they are from the same field of endeavor, i.e. facial image processing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to embody the method on a CRM.

The suggestion/motivation for doing so would have been to provide a well known, compact and thus user friendly means to carry out the method.

Therefore, it would have been obvious to combine the method of Takei (as modified by Cosatto et al and Yamada et al) with the CRM of Yamaguchi to obtain the invention as specified in claims 41 and 99.

16. Claims 63 and 106 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takei in view of Cosatto et al, Yamada et al and Yamaguchi, as applied to claims 41 and 99 above, and further in view of Simon.

17. Claims 63 and 106 are rejected for the same reasons as claims 41 and 99. Thus, the arguments analogous to that presented above for claims 41 and 99 are equally applicable to claims 63 and 106. Claims 63 and 106 distinguishes from claims 41 and 99 only in that they automatically provide an option for generating new values.

Simon et al teaches further this feature, i.e. providing options to the user for generating new values (fig. 1, step 102 and 104).

Takei (as modified by Cosatto et al, Yamada et al and Yamaguchi) and Simon et al are combinable because they are from the same field of endeavor, i.e. processing facial images.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to automatically provide an option.

The suggestion/motivation for doing so would have been to provide a more user-friendly system by allowing them to access their preferences.

Therefore, it would have been obvious to combine Takei (as modified by Cosatto et al, Yamada et al and Yamaguchi) with the option of Simon et al to obtain the invention as specified in claims 63 and 106.

18. Claims 2-5, 42-45, 86-89, and 100-103 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takei in view of Cosatto et al, Yamada et al and Yamaguchi, and further in view of U.S. Patent No. 4970663 (Bedell et al).

19. Regarding claim 2, Takei (as modified by Cosatto et al and Yamada et al) discloses all of the claimed elements as set forth above and incorporated herein by reference.

Takei (as modified by Cosatto et al and Yamada et al) does not disclose expressly (e) gradually displaying a transformation between said original image and the new image.

Yamaguchi discloses when transforming images, displaying the original image (page 3, paragraph 48) and displaying the final image (fig. 11, s234). Thus, Yamaguchi discloses displaying a transformation between these images since both images are displayed.

Takei (as modified by Cosatto et al and Yamada et al) and Yamaguchi are combinable because they are from the same field of endeavor, i.e. processing facial images.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to display the transformation between images.

The suggestion/ motivation for doing so would have been to provide a more user-friendly system by allowing the user to review the transformation.

Takei (as modified by Cosatto et al, Yamada et al and Yamaguchi) does not disclose expressly the gradual display of the transformation.

Bedell et al discloses displaying another type of transformation between the images when disclosing that images can be dissolved from one image to another (col. 4, lines 19-20).

Takei (as modified by Cosatto et al, Yamada et al and Yamaguchi) and Bedell et al are combinable because they are from the same field of endeavor, i.e. manipulating images.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to display a gradual transformation.

The suggestion/motivation for doing so would have been to provide a more user friendly system by allowing the user a pleasing way to view the transformation.

Therefore, it would have been obvious to combine the method of Takei (as modified by Cosatto et al and Yamada et al) with the display of both images of Yamaguchi and the gradual display of Bedell et al to obtain the invention as specified in claim 2.

20. Regarding claim 3, Takei discloses adjusting parameters, the exposure parameters (col. 9, lines 35-40), of said transformation between the original image and the new image. Bedell discloses other parameters, as seen in the rejection for claim 4, below.

21. Regarding claim 4, Bedell et al discloses that parameters of said transformation between images are being selected from a set of criteria including timing, the number of frames it takes to dissolve and blending, the blending of the frames as one frame dissolves into another (col. 4, lines 21-25).

22. Regarding claim 5, Bedell et al discloses blending includes dissolving (col. 4, lines 19-20).

23. Claims 42-45 are rejected for the same reasons as claims 2-5, respectively. Thus, the arguments analogous to that presented above for claims 2-5 are equally applicable to claims 42-45. Claims 42-45 distinguishes from claims 2-5 only in that they have different dependencies, both of which have been previously rejected. Therefore, prior art applies.

24. Claims 86-89 are rejected for the same reasons as claims 2-5, respectively.

Thus, the arguments analogous to that presented above for claims 2-5 are equally applicable to claims 86-89. Claims 86-89 distinguishes from claims 2-5 only in that they have different dependencies, both of which have been previously rejected. Therefore, prior art applies.

25. Claims 100-103 are rejected for the same reasons as claims 2-5, respectively.

Thus, the arguments analogous to that presented above for claims 2-5 are equally applicable to claims 100-103. Claims 100-103 distinguishes from claims 2-5 only in that they have different dependencies, both of which have been previously rejected.

Therefore, prior art applies.

26. Claims 6 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takei (as modified by Cosatto et al, Yamada et al, Yamaguchi and Bedell et al) as applied to claims 5, 45, 89 and 103 above, and further in view of U.S. Patent No. 20030123751 (Krishnamurthy et al).

27. Regarding claim 6, Takei (as modified by Cosatto et al, Yamada et al, Yamaguchi and Bedell et al) discloses all of the claimed elements as set forth above and incorporated herein by reference.

Takei (as modified by Cosatto et al, Yamada et al, Yamaguchi and Bedell et al) does not disclose expressly that the selected portion further comprises a zoom region, and a new image comprising a zoomed image includes the face enlarged by zooming.

Krishnamurthy et al discloses a selected portion, or the region of interest (fig. 2, item 210), further comprises a zoom region, since the region of interest is zoomed in on,

(fig. 2, item 240), and a new image comprising a zoomed image includes the face enlarged by the zooming (fig. 2, item 240), since the face is included in the region of interest (pg. 1, pp. 0009).

Takei (as modified by Cosatto et al, Yamada et al, Yamaguchi and Bedell et al) and Krishnamurthy et al are combinable because they are from the same field of endeavor, i.e. facial image processing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the capability of zooming in on the face.

The suggestion/motivation for doing so would have been more robust system by allowing images to be taken from far away.

Therefore, it would have been obvious to combine Takei (as modified by Cosatto et al, Yamada et al, Yamaguchi and Bedell et al) with the zooming of Krishnamurthy et al to obtain the invention as specified in claim 6.

28. Claim 46 is rejected for the same reasons as claim 6. Thus, the arguments analogous to that presented above for claim 6 are equally applicable to claim 46. Claim 6 distinguishes from claim 46 only in that they have different dependencies, both of which have been previously rejected. Therefore, prior art applies.

29. Claim 90 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takei in view of Cosatto et al, Yamada et al, Yamaguchi and Bedell et al, as applied to claim 89 above, and further in view of U.S. Patent No.6246779 (Fukui et al).



Regarding claim 90, Takei (as modified by Cosatto et al, Yamada et al, Yamaguchi and Bedell et al) discloses all of the claimed elements as set forth above, and incorporated herein by reference.

Takei (as modified by Cosatto et al, Yamada et al, Yamaguchi and Bedell et al) does not disclose expressly determining a point of rotation and an amount of rotation after which another image is automatically generated including a rotated version of the face.

Fukui et al discloses determining a point of rotation, a rotation pivot point (col. 7, line 31) and an amount of rotation  $\theta$  (col. 7, line 40) after which another image is automatically generated including a rotated, transformed version of the face (col. 7, lines 41- col. 8, line 4).

Takei (as modified by Cosatto et al, Yamada et al, Yamaguchi and Bedell et al) and Fukui et al are combinable because they are from the same field of endeavor, i.e. facial image processing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to rotate the face.

The suggestion/motivation for doing so would have been to provide a more user-friendly system by providing a means to obtain a normalized version of the face which can be used in more effectively in many applications such as image matching, or simply be used as a better fit to the display.

Therefore, it would have been obvious to combine the method of Takei (as modified by Cosatto et al, Yamada et al, Yamaguchi and Bedell et al) with the rotation of Fukui et al to obtain the invention as specified in claim 90.

30. Claim 104 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takei in view of Cosatto et al, Yamada et al, and Yamaguchi, and further in view of Fukui.

Regarding claim 104, Takei (as modified by Cosatto et al, Yamada et al and Yamaguchi) discloses all of the claimed elements as set forth above, and incorporated herein by reference.

Takei (as modified by Cosatto et al, Yamada et al and Yamaguchi) does not disclose expressly determining a point of rotation and an amount of rotation such that the generating of the values of the pixels automatically generates a new image including a rotated version of the face by rotating the image about said point of rotation by said amount of rotation.

Fukui et al discloses a step of determining a point of rotation, a rotation pivot point (col. 7, line 31) and an amount of rotation theta (col. 7, line 40) such that the generating of the values of the pixels automatically generates a new image, a transformed version of the face, including a rotated version of the face by rotating the image about said point of rotation by said amount of rotation (col. 7, lines 41- col. 8, line 4.

Takei (as modified by Cosatto et al, Yamada et al and Yamaguchi) and Fukui et al are combinable because they are from the same field of endeavor, i.e. facial image processing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to rotate the face.

The suggestion/motivation for doing so would have been to provide a more user-friendly system by providing a means to obtain a normalized version of the face which can be used in more effectively in many applications such as image matching, or simply be used as a better fit to the display.

Therefore, it would have been obvious to combine the method of Takei (as modified by Cosatto et al, Yamada et al and Yamaguchi) with the rotation of Fukui et al to obtain the invention as specified in claim 104.

31. Claims 7, 11, 47 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takei (in view of Cosatto et al, Yamada et al, Yamaguchi, Bedell et al, and Krishnamurthy et al) and further in view of Fukui.

32. Claims 7 and 47 are rejected for the same reasons as claim 90. Thus, the arguments analogous to that presented above for claim 90 are equally applicable to claims 7 and 47. Claims 7 and 47 distinguish from claim 90 only in that they have different dependencies, all of which have been previously rejected. Therefore, prior art applies.

33. Claims 11 and 51 are rejected for the same reasons as claim 104. Thus, the arguments analogous to that presented above for claim 104 are equally applicable to claims 11 and 51. Claims 11 and 51 distinguish from claim 104 only in that they have different dependencies, all of which have been previously rejected. Therefore, prior art applies.

34. Claim 81 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takei in view of Cosatto et al and Yamada et al, and further in view of Krishnamurthy.

35. Takei (as modified by Cosatto et al and Yamada et al) discloses all of the claimed elements as set forth above and incorporated herein by reference.

Takei (as modified by Cosatto et al and Yamada et al) does not disclose expressly the one or more new still images comprise a plurality of new still images; Takei only adjusts the one image regarding the facial exposure.

Krishnamurthy et al discloses another new image that can be generated from a selected portion, or the region of interest (fig. 2, item 210), comprising a zoom region, since the region of interest is zoomed in on, (fig. 2, item 240), and a new image comprising a zoomed image includes the face enlarged by the zooming (fig. 2, item 240), since the face is included in the region of interest (pg. 1, pp. 0009). With the additional zooming of Krishnamurthy, a plurality of images is generated.

Takei (as modified by Cosatto et al and Yamada et al) and Krishnamurthy et al are combinable because they are from the same field of endeavor, i.e. facial image processing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the capability of zooming in on the face in addition to exposure compensation.

The suggestion/motivation for doing so would have been more robust system by allowing images to be taken from far away.

Therefore, it would have been obvious to combine the method of exposure compensation of Takei (as modified by Cosatto et al and Yamada et al) with the zooming of Krishnamurthy to obtain the invention as claimed in claim 81.

36. Claim 82 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takei in view of Cosatto et al, Yamada et al and Simon, as applied to claim 23 above, and further in view of Krishnamurthy et al.

37. Claim 82 is rejected for the same reasons as claim 81. Thus, the arguments analogous to that presented above for claim 81 are equally applicable to claim 82. Claim 82 distinguishes from claim 81 only in that they have different dependencies, both of which have been previously rejected. Therefore, prior art applies.

38. Claim 83 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takei in view of Cosatto et al, Yamada et al and Yamaguchi, as applied to claim 41 above, and further in view of Krishnamurthy et al. Claim 83 is rejected for the same reasons as claim 81. Thus, the arguments analogous to that presented above for claim 81 are equally applicable to claim 83. Claim 83 distinguishes from claim 81 only in that they have different dependencies, both of which have been previously rejected. Therefore, prior art applies.

39. Claims 84 and 112 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takei in view of Cosatto et al, Yamada et al, Yamaguchi and Simon, as applied to claim 63 above, and further in view of Krishnamurthy et al.

40. Claims 84 and 112 are rejected for the same reasons as claim 81. Thus, the arguments analogous to that presented above for claim 81 are equally applicable to claims 84 and 112. Claims 84 and 112 distinguishes from claim 81 only in that they have different dependencies, both of which have been previously rejected. Therefore, prior art applies.

41. Claim 105 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takei in view of Cosatto et al, Yamada et al and Yamaguchi, as applied to claim 99 above, and further in view of U.S. Patent Application Publication No. 20030142209 (Yamazaki et al).

42. Takei (as modified by Cosatto et al, Yamada et al and Yamaguchi) disclose all of the claimed elements as set forth above and incorporated herein by reference.

Takei (as modified by Cosatto et al, Yamada et al and Yamaguchi) does not disclose expressly generating a panning sequence comprising a sequence of at least two of the original image and the one or more new images.

Yamazaki et la discloses generating of the values by generating one or more new images (fig. 2, items 3-3 to 3-5) each including a new group of pixels corresponding to the face, the face being shown in fig. 2, items 3-3 to 3-5 and the new group of pixels being the changes in the face in the new images, and further comprising the step of

generating a panning sequence (pg. 2, pp. 21) which keeps the object of interest in the center, comprising a sequence of at least two of the original images (fig. 3, items 3-2 to 3-3) and the one or more new images (fig. 3-4).

Takei (as modified by Cosatto et al, Yamada et al and Yamaguchi) and Yamazaki et al are combinable because they are from the same field of endeavor, i.e. facial image processing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to pan in new images.

The suggestion/motivation for doing so would have been to provide a more user-friendly system by automatically following an object of interest instead of manually following, and to increase speed by following the object instead of asking the user to find the object when it moves.

Therefore, it would have been obvious to combine the method of Takei (as modified by Cosatto et al, Yamada et al and Yamaguchi) with Yamazaki et al to obtain the invention as specified in claim 105.

43. Claim 91 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takei in view of Cosatto et al, Yamada et al, Yamaguchi and Bedell et al, and further in view of Yamazaki et al.

Takei (as modified by Cosatto et al, Yamada et al, Yamaguchi and Bedell et al) discloses all of the claimed elements as set forth above and incorporated herein by reference.

Takei (as modified by Cosatto et al, Yamada et al, Yamaguchi and Bedell et al) does not disclose expressly (g) determining one or more further new images each including a new group of pixels corresponding to the face; and (h) automatically panning using the one or more further new images.

Yamazaki et al discloses determining one or more further new images each including a new group of pixels corresponding to the face by obtaining more images over time that include the face (fig. 3, item 3-3 to 3-5). And automatically panning using one or more further new images, as can be seen in items 3.3 to 3.5, since the person moves and the camera keeps the person in the center, thus panning (pg. 2, pp. 21).

Takei (as modified by Cosatto et al, Yamada et al, Yamaguchi and Bedell et al) and Yamazaki et al are combinable because they are from the same field of endeavor, i.e. facial image processing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to pan in new images.

The suggestion/motivation for doing so would have been to provide a more user-friendly system by automatically following an object of interest instead of manually following, and to increase speed by following the object instead of asking the user to find the object when it moves.

Therefore, it would have been obvious to combine the method of Takei (as modified by Cosatto et al, Yamada et al, Yamaguchi and Bedell et al) with Yamazaki et al to obtain the invention as specified in claim 91.



44. Claims 8, 9, 14-15, 48, 49, 54 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takei, Cosatto et al, Yamada et al, Yamaguchi, Bedell and Krishnamurthy and further in view of Yamazaki et al.

45. Claims 8 and 14 are rejected for the same reasons as claims 91 and 105, respectively. Thus, the arguments analogous to that presented above for claims 91 and 105 are equally applicable to claims 8 and 14. Claims 8 and 14 distinguish from claims 91 and 105 only in that they have different dependencies, both of which have been previously rejected. Therefore, prior art applies.

46. Claims 48 and 54 are rejected for the same reasons as claims 91 and 105, respectively. Thus, the arguments analogous to that presented above for claims 91 and 105 are equally applicable to claims 48 and 54. Claims 48 and 54 distinguish from claims 91 and 105 only in that they have different dependencies, both of which have been previously rejected. Therefore, prior art applies.

47. Regarding claim 9, Yamazaki et al discloses each of the one or more further new images including pixels corresponding to features different from at least one other image of the one or more further new images, such features being the differences in the image from movement, such as the movement of the door and the pixels corresponding to the movement (fig. 3, items 3-2 to 3-5).

48. Claims 15, 49, and 55 are rejected for the same reasons as claim 9. Thus, the arguments analogous to that presented above for claim 9 are equally applicable to claims 15, 49, and 55. Claims 15, 49, and 55 distinguish from claim only in that they

have different dependencies, all of which have been previously rejected. Therefore, prior art applies.

49. Claims 10, 12, 13, 50, 52 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takei (as modified by of Cosatto et al, Yamada et al, Yamaguchi, Bedell et al and Krishnamurthy) and further in view of Yamazaki, as applied to claims 8 and 48 and Fukui et al, as applied to claims 11 and 51.

Regarding claim 10, Takei (as modified by of Cosatto et al, Yamada et al, Yamaguchi, Bedell et al, Krishnamurthy and Yamazaki) discloses all of the claimed elements as set forth above, and incorporated herein by reference.

Takei (as modified by of Cosatto et al, Yamada et al, Yamaguchi, Bedell et al, Krishnamurthy and Yamazaki) does not disclose expressly determining a point of rotation and an amount of rotation after which another image is automatically generated including a rotated version of the face.

Fukui et al discloses determining a point of rotation, a rotation pivot point (col. 7, line 31) and an amount of rotation  $\theta$  (col. 7, line 40) after which another image is automatically generated including a rotated, transformed version of the face (col. 7, lines 41- col. 8, line 4).

Takei (as modified by of Cosatto et al, Yamada et al, Yamaguchi, Bedell et al, Krishnamurthy and Yamazaki) and Fukui et al are combinable because they are from the same field of endeavor, i.e. facial image processing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to rotate the face.

The suggestion/motivation for doing so would have been to provide a more user-friendly system by providing a means to obtain a normalized version of the face which can be used in more effectively in many applications such as image matching, or simply be used as a better fit to the display.

Therefore, it would have been obvious to combine the method of Takei (as modified by of Cosatto et al, Yamada et al, Yamaguchi, Bedell et al, Krishnamurthy and Yamazaki) with Fukui et al to obtain the invention as specified in claim 10.

50. Claim 50 is rejected for the same reasons as claim 10. Thus, the arguments analogous to that presented above for claim 10 are equally applicable to claim 50. Claim 50 distinguishes from claim 10 only in that they have different dependencies, both of which have been previously rejected. Therefore, prior art applies.

51. Regarding claim 12, Takei (as modified by Cosatto et al, Yamada et al, Yamaguchi, Bedell, Krishnamurthy and Fukui) discloses all of the claimed elements as set forth above, and incorporated herein by reference. Takei (as modified by Cosatto et al, Yamada et al, Yamaguchi, Bedell, Krishnamurthy and Fukui) does not disclose expressly (d) determining one or more further new images each including a new group of pixels corresponding to the face; and (e) automatically panning using the one or more further new images. Yamazaki et al discloses determining one or more further new images each including a new group of pixels corresponding to the face by obtaining more images over time that include the face (fig. 3, item 3-3 to 3-5). And automatically

panning using one or more further new images, as can be seen in items 3.3 to 3.5, since the person moves and the camera keeps the person in the center, thus panning (pg. 2, pp. 21). Takei (as modified by Cosatto et al, Yamada et al, Yamaguchi, Bedell, Krishnamurthy and Fukui) and Yamazaki et al are combinable because they are from the same field of endeavor, i.e. facial image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to pan in new images. The suggestion/motivation for doing so would have been to provide a more user-friendly system by automatically following an object of interest instead of manually following, and to increase speed by following the object instead of asking the user to find the object when it moves. Therefore, it would have been obvious to combine the method of Takei (as modified by Cosatto et al, Yamada et al, Yamaguchi, Bedell, Krishnamurthy and Fukui) with Yamazaki et al to obtain the invention as specified in claim 12.

52. Claim 52 is rejected for the same reasons as claim 12. Thus, the arguments analogous to that presented above for claim 12 are equally applicable to claim 52. Claim 52 distinguishes from claim 10 only in that they have different dependencies, both of which have been previously rejected. Therefore, prior art applies.

53. Claims 13 and 53 are rejected for the same reasons as claim 9. Thus, the arguments analogous to that presented above for claim 9 are equally applicable to claims 13 and 53. Claim 13 and 53 distinguish from claim 9 only in that they have different dependencies, all of which have been previously rejected. Therefore, prior art applies.

54. Claims 32, 33, and 98 rejected under 35 U.S.C. 103(a) as being unpatentable over Takei in view of Cosatto et al, Yamada et al and Simon, as applied to claims 23 and 92 above, and further in view of Yamazaki et al.

55. Claims 32 and 98 are rejected for the same reasons as claim 14. Thus, the arguments analogous to that presented above for claim 14 are equally applicable to claims 32 and 98. Claims 32 and 98 distinguish from claim 14 only in that claims 32 and 98 provide options for continuing processing. Simon teaches further this feature, as discussed above.

56. Claim 33 is rejected for the same reasons as claim 9. Thus, the arguments analogous to that presented above for claim 9 are equally applicable to claim 33. Claim 33 distinguishes from claim 9 only in that they have different dependencies, all of which have been previously rejected. Therefore, prior art applies.

57. Claims 72, 73, 110 and 111 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takei in view of Cosatto et al, Yamada et al, Yamaguchi and Simon, as applied to claims 63 and 101 above, and further in view of Yamazaki et al.

58. Claims 72 and 110 are rejected for the same reasons as claim 14. Thus, the arguments analogous to that presented above for claim 14 are equally applicable to claims 72 and 110. Claims 72 and 110 distinguish from claim 14 only in that claims 72 and 110 provide options for continuing processing. Simon teaches further this feature, as discussed above.

59. Claims 73 and 111 are rejected for the same reasons as claim 9. Thus, the arguments analogous to that presented above for claim 9 are equally applicable to

claims 73 and 111. Claims 73 and 111 distinguish from claim only in that they have different dependencies, all of which have been previously rejected. Therefore, prior art applies.

60. Claims 29 and 96 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takei (as modified by Cosatto et al, Yamada et al and Simon), as applied to claims 23 and 92 above, and further in view of Fukui.

61. Claims 29 and 96 are rejected for the same reasons as claim 11. Thus, the arguments analogous to that presented above for claim 11 are equally applicable to claims 29 and 96. Claims 29 and 96 distinguishes from claim 11 only in that claims 29 and 96 provide an option to generate a new image. Simon teaches further this feature, as discussed above.

62. Claims 69 and 107 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takei in view of Cosatto et al, Yamada et al, Yamaguchi and Simon, as applied to claims 63 and 101 above, and further in view of Fukui.

63. Claims 69 and 107 are rejected for the same reasons as claim 11. Thus, the arguments analogous to that presented above for claim 11 are equally applicable to claims 69 and 107. Claims 69 and 107 distinguishes from claim 11 only in that claims 69 and 107 provide an option to generate a new image. Simon teaches further this feature, as discussed above.

64. Claims 30-31 and 97 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takei in view of Cosatto et al, Yamada et al, Simon and Fukui, as applied to claims 23 and 92 above, and further in view of Yamazaki et al.

65. Claims 30 and 97 are rejected for the same reasons as claim 12. Thus, the arguments analogous to that presented above for claim 12 are equally applicable to claims 30 and 97. Claims 30 and 97 distinguishes from claim 12 only in that claims 30 and 97 provide options for continuing processing. Simon teaches further this feature, as discussed above.

66. Claim 31 is rejected for the same reasons as claim 9. Thus, the arguments analogous to that presented above for claim 9 are equally applicable to claim 31. Claim 31 distinguishes from claim 9 only in that they have different dependencies, all of which have been previously rejected. Therefore, prior art applies.

67. Claims 70-71 and 108-109 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takei in view of Cosatto et al, Yamada et al, Yamaguchi, Simon and Fukui, as applied to claims 63 and 101 above, and further in view of Yamazaki et al.

68. Claims 70 and 108 are rejected for the same reasons as claim 12. Thus, the arguments analogous to that presented above for claim 12 are equally applicable to claims 70 and 108. Claims 70 and 108 distinguishes from claim 12 only in that claims 70 and 108 provide options for continuing processing. Simon teaches further this feature, as discussed above.

69. Claims 71 and 109 are rejected for the same reasons as claim 9. Thus, the arguments analogous to that presented above for claim 9 are equally applicable to claims 71 and 109. Claims 71 and 109 distinguish from claim 9 only in that they have different dependencies, all of which have been previously rejected. Therefore, prior art applies.

70. Claims 24 and 93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takei in view of Cosatto et al, Yamada et al and Simon, as applied to claims 23 and 92 above, and further in view of Krishnamurthy et al.

71. Claims 24 and 93 are rejected for the same reasons as claim 6. Thus, the arguments analogous to that presented above for claim 6 are equally applicable to claims 24 and 93. Claims 24 and 93 distinguish from claim 6 only in that they have different dependencies, both of which have been previously rejected. Therefore, prior art applies.

72. Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takei in view of Cosatto et al, Yamada et al, Yamaguchi and Simon, as applied to claim 63 above, and further in view of Krishnamurthy et al.

73. Claim 64 is rejected for the same reasons as claim 6. Thus, the arguments analogous to that presented above for claim 6 are equally applicable to claim 64. Claim 64 distinguishes from claim 6 only in that they have different dependencies, both of which have been previously rejected. Therefore, prior art applies.



74. Claims 25 and 94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takei in view of Cosatto et al, Yamada et al, Simon and Krishnamurthy, as applied to claims 24 and 93 above, and further in view of Fukui.

75. Claims 25 and 94 are rejected for the same reasons as claim 7. Thus, the arguments analogous to that presented above for claim 7 are equally applicable to claims 25 and 94. Claims 25 and 94 distinguish from claim 7 only in that they have different dependencies, both of which have been previously rejected. Therefore, prior art applies.

76. Claim 65 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takei in view of Cosatto et al, Yamada et al, Yamaguchi, Simon and Krishnamurthy, as applied to claim 64 above, and further in view of Fukui.

77. Claim 65 is rejected for the same reasons as claim 7. Thus, the arguments analogous to that presented above for claim 7 are equally applicable to claim 65. Claim 65 distinguishes from claim 7 only in that they have different dependencies, both of which have been previously rejected. Therefore, prior art applies.

78. Claims 26, 27 and 95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takei in view of Cosatto et al, Yamada et al, Simon and Krishnamurthy, as applied to claims 24 and 93 above, and further in view of Yamazaki et al.

79. Claims 26 and 95 are rejected for the same reasons as claim 8. Thus, the arguments analogous to that presented above for claim 8 are equally applicable to claims 26 and 95. Claims 26 and 95 distinguishes from claim 8 only in that claims 26 and 95 provide options for continuing processing. Simon teaches further this feature, as discussed above.

80. Claim 27 is rejected for the same reasons as claim 9. Thus, the arguments analogous to that presented above for claim 9 are equally applicable to claim 27. Claim 27 distinguishes from claim 9 only in that they have different dependencies, all of which have been previously rejected. Therefore, prior art applies.

81. Claims 66 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takei in view of Cosatto et al, Yamada et al, Yamaguchi, Simon and Krishnamurthy, as applied to claims 64 above, and further in view of Yamazaki et al.

82. Claim 66 is rejected for the same reasons as claim 8. Thus, the arguments analogous to that presented above for claim 8 are equally applicable to claim 66. Claim 66 distinguishes from claim 8 only in that claim 66 provides options for continuing processing. Simon teaches further this feature, as discussed above.

83. Claim 67 is rejected for the same reasons as claim 9. Thus, the arguments analogous to that presented above for claim 9 are equally applicable to claim 67. Claim 67 distinguishes from claim 9 only in that they have different dependencies, all of which have been previously rejected. Therefore, prior art applies.

84. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takei, Cosatto et al, Yamada et al, Simon, Krishnamurthy and Yamazaki as applied to claim 26 above, and further in view of Fukui.

85. Claim 28 is rejected for the same reasons as claim 10. Thus, the arguments analogous to that presented above for claim 10 are equally applicable to claim 28. Claim 28 distinguishes from claim 10 only in that they have different dependencies, all of which have been previously rejected. Therefore, prior art applies.

86. Claim 68 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takei, Cosatto et al, Yamada et al, Yamaguchi, Simon, Krishnamurthy and Yamazaki as applied to claims 26 and 66 above, and further in view of Fukui.

87. Claim 68 is rejected for the same reasons as claim 10. Thus, the arguments analogous to that presented above for claim 10 are equally applicable to claim 68. Claim 68 distinguishes from claim 10 only in that they have different dependencies, all of which have been previously rejected. Therefore, prior art applies.

### ***Conclusion***

88. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KATHLEEN S. YUAN whose telephone number is (571)272-2902. The examiner can normally be reached on Monday to Thursdays, 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571)272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kathleen S Yuan/  
Examiner, Art Unit 2624  
8/28/2010